

REMARKS

I. CLAIM STATUS

Claims 1-26 are pending.¹ Herein, claim 1 is amended to clarify that “said element” is the recited “elongated element.” Support for this amendment can be found throughout the specification, e.g., Specification as-published (U.S. Patent Application Publication No. 2005/0175834 A1) at ¶ [0009]. Thus, no new matter has been presented.

II. REJECTIONS UNDER 35 U.S.C. § 112, ¶ 2

The Examiner rejects claims 1-21 under 35 U.S.C. § 112, ¶ 2, for allegedly being indefinite. *See* Office Action at 2-3. According to the Examiner, claim 1 is allegedly indefinite for the phrases “said element” and “preferably,” and claim 13 is allegedly indefinite for the phrase “preferably.” *Id.* Applicants draw the Examiner’s attention to the Preliminary Amendment filed June 25, 2004, which removed the “preferably” language. With respect to “said element,” Applicants have amended claim 1 to clarify that it is the “said elongated element,” which comprises the polymeric composition. Accordingly, Applicants respectfully request that the Examiner withdraw these rejections.

¹ In the Office Action, the Examiner identifies claims 1-21 as pending, but claims 22-26 were added by a Preliminary Amendment on June 25, 2004, which is reported in PAIR. Thus, claims 1-26 are pending.

III. REJECTIONS UNDER 35 U.S.C. § 103(a)

The Examiner rejects claims 1-21 under 35 U.S.C. § 103 as unpatentable over Anelli et al. (U.S. Patent No. 6,577,796² and WO 00/21098) in view of Uemura et al. (U.S. Patent No. 5,134,036). *See* Office Action at 4-5. In sum, the Examiner relies upon Anelli to teach a cable comprising a water-soluble polymer composition that comprises a vinyl alcohol/vinyl acetate copolymer. *See* Office Action at 4. The Examiner further notes that Anelli teaches that in addition to the polymer, conventional additives may be used, including stabilizers and plasticizers. *See* Office Action at 4.

The Examiner, however, concedes that Anelli does not specify the claimed stabilizer, but relies upon Uemura to allegedly cure this deficiency. *See* Office Action at 4-5. According to the Examiner, "Uemura teaches a composition comprising ethylene vinyl alcohol copolymer and vinyl acetate (column 5, lines 12-21)," and further "comprises known conventional stabilizer compound of the type contemplated by applicants, wherein the copolymers has a degree of saponification within the instant claimed range. Note column 3, line 35 through column 4, and line 13." Office Action at 5.

The Examiner concludes that it would have been obvious to modify the copolymer of Anelli by using any conventional stabilizer known in the art, including those taught by Uemura. *See* Office Action at 5. Moreover, the Examiner argues that "these claims would have been obvious because the substitution of one known stabilizer for another would have yielded predictable results. . . ." *Id.*

² U.S. Patent No. 6,577,796 is not available as prior art under Section 103(c).

Applicants respectfully disagree and traverse this rejection for at least the following reasons.

Several basic factual inquiries must be made in order to determine the obviousness or non-obviousness of claims of a patent application under 35 U.S.C.

§ 103. These factual inquiries, set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 17, 148 U.S.P.Q. 459, 467 (1966), require the Examiner to:

- (1) Determine the scope and content of the prior art;
- (2) Ascertain the differences between the prior art and the claims in issue;
- (3) Resolve the level of ordinary skill in the pertinent art; and
- (4) Evaluate evidence of secondary considerations.

The obviousness or nonobviousness of the claimed invention is then evaluated in view of the results of these inquiries. *Graham*, 383 U.S. at 17-18, 148 U.S.P.Q. 467.

In determining the differences between the prior art and the claims, the question under § 103 is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been obvious. See M.P.E.P. § 2141.02 (citations omitted). The Supreme Court, in its recent decision in *KSR Int'l Co. v. Teleflex, Inc.*, recognized that a showing of “teaching, suggestion, or motivation” could provide helpful insight in determining whether the claimed subject matter is obvious under § 103(a). 127 S. Ct. 1727, 1740-41, 82 U.S.P.Q.2d 1385, 1396 (2007).

Applicants respectfully submit that the Examiner has not established a *prima facie* case of obviousness because there would have been no motivation to incorporate the antioxidants of Uemura for the stabilizers of Anelli and no reasonable expectation of success to arrive at Applicants' claimed invention.

The Examiner's argument is premised on the interchangeability of the antioxidants of Uemura with the stabilizers of Anelli. *See* Office Action at 5. The Examiner, however, has not established that such compounds are recognized as interchangeable in the art; it is not enough that they *may be* functional equivalents. *See* M.P.E.P. § 2144.06. In fact, a review of the references suggests that the compounds would not be recognized as interchangeable. Uemura clearly explains that its antioxidants are necessary for the saponification of the ethylene-vinyl alcohol copolymers when oxygen is present during the saponification process. *See* Uemura, col. 3, line 35 - col. 4, line 13. In other words, the antioxidants of Uemura are understood to serve their function in the manufacturing process.³ In contrast, Anelli discloses a product comprising a different copolymer, a vinyl alcohol/vinyl acetate copolymer, wherein stabilizers may be added to the already saponified copolymer to form its inventive product. *See* Anelli, page 10, lines 20-27 & page 18, lines 1-8. In other words, the stabilizers of Anelli are understood to serve their function after the product has been manufactured. Applicants submit that given these differences, there is no expectation of interchangeability and, thus, no motivation to combine and no reasonable expectation of success.

Furthermore, contrary to the Examiner's position that the claimed invention "would have been obvious because the substitution of one known stabilizer for another would have yielded predictable results" (Office Action at 5), Applicants have discovered that compositions containing hydrolysis stabilizers with the recited structural properties,

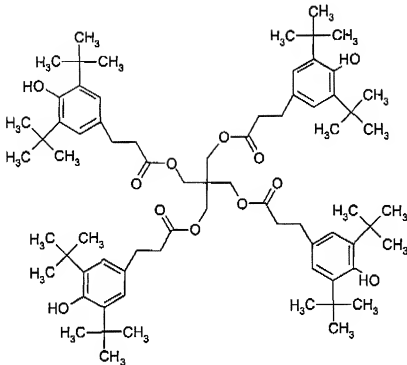
³ This is further highlighted by the fact that for purposes of stabilization after manufacture, Uemura makes reference to the use of general stabilizers, just like Anelli. *See* Uemura, col. 6, lines 45-51.

such as Irganox® 1098, have unexpectedly superior properties as compared to compositions containing other types of stabilizers without the recited structural properties, such as Irganox® 1010, yet the art, as reported by Uemura incorrectly deemed those compounds to be equivalent antioxidants.

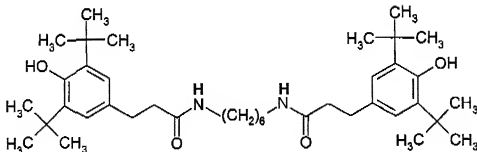
In particular, Uemura teaches the saponification of ethylene-vinyl alcohol copolymers and states that “[i]t is primarily important that the saponification be carried out in the absence of oxygen or in the presence of an antioxidant.” Uemura, col. 3, lines 43-45 (emphasis added). Furthermore, “[t]he antioxidant is not particularly limited as long as it does not act adversely to the saponification reaction . . . and is representatively exemplified by, for example, hindered phenol antioxidants,” such as Irganox® 1010 and Irganox® 1098. *Id.* at col. 3, line 50 – col. 4, line 13.

In order to fully appreciate the chemical differences between Irganox® 1010 and Irganox® 1098, Applicants provide their respective molecular formulas:

Irganox® 1010



Irganox® 1098



While Uemura considers the hindered phenol antioxidants as equivalent antioxidants for the purposes of saponification of ethylene vinyl alcohol copolymers, the present invention found that only hydrolysis stabilizers having a specific chemical structure will resist the aging phenomena in a vinyl alcohol/vinyl acetate copolymer ("VA-VAc copolymer").

The present invention relates to a water-soluble polymeric composition comprising, *inter alia*, "a hydrolysis stabilizer compound comprising a chelant group comprising two hydrogen atoms bonded to two respective heteroatoms selected from nitrogen, oxygen and sulphur, said two hydrogen atoms having a distance between each other of from 4.2×10^{-10} m to 5.8×10^{-10} m, preferably of from 4.5×10^{-10} m to 5.5×10^{-10} m." Specification as-published at ¶ [0012] (emphasis added); *see also id.* at claim 1.

According to a non-binding hypothesis, Applicants believe that such distance "is capable of effectively interacting with the polymeric chain of the VA-VAc copolymer in order to limit the hydrolysis of the residual acetate groups." *Id.* at ¶ [0063].

Comparing the structures of the two phenol antioxidants, considered by Uemura to be equivalent antioxidants, shows that the distance between the two hydrogen atoms (calculated as described in the Specification as-published at ¶ [0070]) are different. Specifically, the distance between the hydrogen atoms of -NH- in Irganox® 1098 is 5.0×10^{-10} m, while the distance between the hydrogen atoms of -C(OH)- is 8.7 to 10.5×10^{-10} m in Irganox® 1010, which is outside the recited range of claim 1. Table 2 of the present application shows the effectiveness of a hydrolysis stabilizer according to the invention (composition 1, containing Irganox® 1098) versus compounds having hydrogen distance outside of the claimed range, including Composition 5, which contains Irganox® 1010 and had the worst reported value. This experimental data unequivocally demonstrates that hydrolysis stabilizers within the scope of the claims, such as Irganox® 1098, are unexpectedly superior to stabilizers that are outside the

scope of the claims, such as Irganox® 1010. A fact that Uemura and the prior art did not appreciate.

Relying on *In re Rau*, 117 U.S.P.Q. 215 (C.C.P.A. 1958), the Examiner argues that “a patent cannot be granted for an applicants' discovery or a result, even though it may be unexpectedly good, which would flow logically from the teaching of the prior art.” The Examiner's reliance on *In re Rau* is misplaced. First, if not expressly overturned or distinguished, *In re Rau* is inconsistent with the later U.S. Supreme Court decisions in *Graham* (1966) and *KSR* (2007) and their 30 plus years of progeny, which set out that secondary considerations, such as unexpected results, are to be taken into consideration in Section 103 analysis. Even the M.P.E.P. has stated that evidence of secondary considerations such as unexpected results are relevant to the issue of obviousness and should be considered in every case in which they are present. M.P.E.P. § 2141(V). Second, *In re Rau* is inapplicable on its face because, for example, the antioxidants of Uemura serve a different purpose than the stabilizers of Anelli and, thus, are not recognized as interchangeable.

Accordingly, the Examiner has not established a *prima facie* case of obviousness because one skilled in the art would not have had a reasonable expectation from Uemura that a hydrolysis stabilizer falling within the claimed hydrogen distance range would be more successful than stabilizers outside the claimed range. Thus, Applicants respectfully submit that the rejection should be withdrawn.

IV. DOUBLE PATENTING REJECTION

The Examiner rejects claims 1-7 and 10-15 on the grounds of obviousness-type double patenting over claims 1, 29, and 30 of U.S. Patent No. 7,155,094. See Office

Action at 5-6. While Applicants disagree with the merits of the double patenting rejection, in order to advance the prosecution of this application, Applicants submit herewith a Terminal Disclaimer over U.S. Patent No. 7,155,094, pursuant to 37 C.F.R. § 1.321(c). Accordingly, Applicants respectfully request the withdrawal of the rejection.

Conclusion

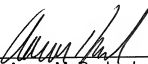
In view of the foregoing amendments and remarks, Applicants respectfully request reconsideration of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our Deposit Account No. 06-0916.

Respectfully submitted,

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